

CLAIMS:

1. An optical scanning device for scanning an information layer of an optical record carrier, the device comprising a radiation source for generating a radiation beam and an objective system for converging the radiation beam on the information layer, wherein the device includes an optical element comprising at least two adjacent materials with a shaped interface between the materials, at least the first of the materials being birefringent, the second material having a refractive index substantially equal to the refractive index of the birefringent material at a predetermined angle.
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2. A device as claimed in claim 1, wherein the radiation source is arranged to generate a polarised radiation beam, the optical scanning device further comprising beam rotation means arranged to controllably alter the angle at which the polarised radiation beam is incident on the optical element.
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3. A device as claimed in claim 2, wherein said beam rotation means is arranged to rotate the element.
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4. A device as claimed in claim 2, wherein said beam rotation means is arranged to alter the polarisation angle of the polarised radiation beam.
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5. A device as claimed in claim 1, wherein said second material is birefringent.
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6. A device as claimed in any one of the above claims, wherein the second material has a refractive index n_s and the birefringent material has an ordinary refractive index n_o and an extraordinary refractive index n_e , wherein $n_e \geq n_s \geq n_o$ or $n_e \leq n_s \leq n_o$.
7. A device as claimed in any one of the above claims, wherein at least one of the first material and the second material is shaped as a lens.

8. A device as claimed in any one of the above claims, wherein at least of said first material and said second material is shaped as at least one of a planoconcave lens and a planoconvex lens.

5 9. A device as claimed in any one of the above claims, wherein one of the two materials is shaped as a planoconvex lens and the other of the two materials is shaped as a mating planoconcave lens.

10. 10. An optical component comprising at least two adjacent materials with a curved 10 interface between the materials, at least the first of the materials being birefringent the second material having a refractive index substantially equal to the refractive index of the birefringent material at a predetermined angle.

11. 11. An optical element as claimed in claim 10, wherein said interface is curved.

15 12. An optical component as claimed in claim 10 or claim 11, wherein said first material comprises a polymerised anisotropically oriented liquid crystal.

20 13. An optical component as claimed in any one of claims 10 to 12, wherein at least one of the outer surfaces of the optical element is planar.

14. 14. A method of manufacturing an optical scanning device for scanning an information layer of an optical record carrier, the information layer being covered by a transparent layer of thickness t_d and refractive index n_d , the method comprising the steps of:

25 providing a radiation source for generating a radiation beam;
providing an optical element, the optical element comprising at least two adjacent materials with a shaped interface between the materials, at least the first of the materials being birefringent, the second material having a refractive index substantially equal to the refractive index of the birefringent material at a predetermined angle.

30 15. 15. A method of manufacturing an optical component, the method comprising:
providing at least two adjacent materials with a shaped interface between the materials, at least the first material being birefringent and the second material having a

refractive index substantially equal to one of the refractive indices of the birefringent material at a predetermined angle.

16. A method as claimed in claim 15, the method comprising:
 - 5 placing a material between a substrate and a mould, the mould having a shaped surface, at least a portion of the shaped surface having an alignment layer formed thereon, and the substrate having a first surface on which is formed a bonding layer;
 - bringing the mould and the substrate together so as to sandwich the material between the first surface of the substrate and the shaped surface of the mould;
 - 10 polymerising the material so as to form said first material;
 - adhering the material to the bonding layer;
 - removing the substrate with the adhered polymerised material from the mould;
 - covering the shaped surface of the polymerised first material with a polymerisable further material; and
 - 15 polymerising the further material so as to form the second material.